

## CLAIMS

1. An antimicrobial composition, the composition comprising a divalent cation and a peptide, the peptide being non-glycosylated, less than about 100 amino acids, and comprising an amino acid sequence selected from the group consisting of:-

Ala Val Glu Ser Thr Val Ala Thr Leu Glu Ala Ser(*P*) Pro Glu Val Ile Glu Ser Pro Pro  
5 Glu, (SEQ ID NO:1)

Ala Val Glu Ser Thr Val Ala Thr Leu Glu Asp Ser(*P*) Pro Glu Val Ile Glu Ser Pro Pro  
Glu, (SEQ ID NO:2)

and conservative substitutions therein.

2. An antimicrobial composition according to claim 1 wherein the peptide is less than  
10 about 70 amino acids.

3. An antimicrobial composition according to any one of claims 1 or 2 wherein the  
peptide comprises an amino acid sequence selected from the group consisting of:-

Ala Val Glu Ser Thr Val Ala Thr Leu Glu Ala Ser(*P*) Pro Glu Val Ile Glu Ser Pro Pro Glu,  
(SEQ ID NO:1) and

15 Ala Val Glu Ser Thr Val Ala Thr Leu Glu Asp Ser(*P*) Pro Glu Val Ile Glu Ser Pro Pro Glu.  
(SEQ ID NO:2).

4. An antimicrobial composition according to any one of claims 1 or 2 wherein the  
peptide comprises an amino acid sequence selected from the group consisting of:-

20 Met Ala Ile Pro Pro Lys Lys Asn Gln Asp Lys Thr Glu Ile Pro Thr Ile Asn Thr Ile Ala Ser Gly  
Glu Pro Thr Ser Thr Pro Thr Ile Glu Ala Val Glu Ser Thr Val Ala Thr Leu Glu Ala Ser(*P*) Pro  
Glu Val Ile Glu Ser Pro Pro Glu Ile Asn Thr Val Gln Val Thr Ser Thr Ala Val (SEQ ID NO:3);

Met Ala Ile Pro Pro Lys Lys Asn Gln Asp Lys Thr hr Glu Ile Pro Thr hr Ile Asn Thr hr Ile Ala  
25 Ser(*P*) Gly Glu Pro Thr hr Ser Thr Pro Thr Ile Glu Ala Val Glu Ser Thr Val Ala Thr Leu Glu  
Ala Ser(*P*) Pro Glu Val Ile Glu Ser Pro Pro Glu Ile Asn Thr Val Gln Val Thr Ser Thr Ala Val  
(SEQ ID NO:4);

Met Ala Ile Pro Pro Lys Lys Asn Gln Asp Lys Thr Glu Ile Pro Thr Ile Asn Thr Ile Ala Ser Gly  
Glu Pro Thr Ser Thr Pro Thr Thr Glu Ala Val Glu Ser Thr Val Ala Thr Leu Glu Asp Ser(*P*) Pro  
Glu Val Ile Glu Ser Pro Pro Glu Ile Asn Thr Val Gln Val Thr Ser Thr Ala Val (SEQ ID NO:5);

Met Ala Ile Pro Pro Lys Lys Asn Gln Asp Lys Thr Glu Ile Pro Thr Ile Asn Thr Ile Ala Ser(*P*)  
Gly Glu Pro Thr Ser Thr Pro Thr Thr Glu Ala Val Glu Ser Thr Val Ala Thr Leu Glu Asp Ser(*P*)  
Pro Glu Val Ile Glu Ser Pro Pro Glu Ile Asn Thr Val Gln Val Thr Ser Thr Ala Val (SEQ ID  
NO:6);

5 Thr Glu Ile Pro Thr Ile Asn Thr Ile Ala Ser Gly Glu Pro Thr Ser Thr Pro Thr Ile Glu Ala Val  
Glu Ser Thr Val Ala Thr Leu Glu Ala Ser(*P*) Pro Glu Val Ile Glu Ser Pro Pro Glu Ile Asn Thr  
Val Gln Val Thr Ser Thr Ala Val (SEQ ID NO:7);

10 Thr Glu Ile Pro Thr Ile Asn Thr Ile Ala Ser(*P*) Gly Glu Pro Thr Ser Thr Pro Thr Ile Glu Ala Val  
Glu Ser Thr Val Ala Thr Leu Glu Ala Ser(*P*) Pro Glu Val Ile Glu Ser Pro Pro Glu Ile Asn Thr  
Val Gln Val Thr Ser Thr Ala Val (SEQ ID NO:8);

Thr Glu Ile Pro Thr Ile Asn Thr Ile Ala Ser Gly Glu Pro Thr Ser Thr Pro Thr Thr Glu Ala Val  
Glu Ser Thr Val Ala Thr Leu Glu Asp Ser(*P*) Pro Glu Val Ile Glu Ser Pro Pro Glu Ile Asn Thr  
Val Gln Val Thr Ser Thr Ala Val (SEQ ID NO:9);

15 Thr Glu Ile Pro Thr Ile Asn Thr Ile Ala Ser(*P*) Gly Glu Pro Thr Ser Thr Pro Thr Thr Glu Ala  
Val Glu Ser Thr Val Ala Thr Leu Glu Asp Ser(*P*) Pro Glu Val Ile Glu Ser Pro Pro Glu Ile Asn Thr  
Val Gln Val Thr Ser Thr Ala Val (SEQ ID NO:10);

and conservative substitutions therein.

5. An antimicrobial composition according to any one of claims 1 to 4 wherein the  
divalent cation is selected from the group comprising  $Zn^{2+}$ ,  $Ca^{2+}$ ,  $Cu^{2+}$ ,  $Ni^{2+}$ ,  $Co^{2+}$ ,  $Fe^{2+}$ ,  $Sn^{2+}$ ,  
20  $Mn^{2+}$ ,  $SnF^+$  and  $CuF^+$ .

6. An antimicrobial composition according to claim 5 wherein the divalent cation is  $Ca^{2+}$   
or  $Zn^{2+}$ .

7. An antimicrobial composition according to any one of claims 1 to 6 wherein the  
composition has a molar ratio of the divalent cation to the peptide in the range of 0.5 –  
25 15.0:1.0.

8. An antimicrobial composition according to claim 7 wherein the molar ratio of the  
divalent cation to the peptide is in the range of 0.5:1.0 to 4.0:1.0.

9. An antimicrobial composition according to claim 8 wherein the molar ratio of the  
divalent cation to the peptide is in the range of 1.0:1.0 to 4.0:1.0.

10. An antimicrobial composition according to claim 9 wherein the molar ratio of the divalent cation to the peptide is in the range of 1.0:1.0 to 2.0:1.0.
11. A pharmaceutical composition comprising a composition according to any one of claims 1 to 10 and a pharmaceutically acceptable carrier.
- 5 12. A method of treating or preventing dental caries or periodontal disease in a subject, the method comprising the step of administering a composition according to any one of claims 1 to 11 to the subject.
13. A method of treating or preventing dental caries or periodontal disease according to claim 12, wherein the composition is administered to the teeth or gums of the subject.
- 10 14. A method of treating or preventing dental caries or periodontal disease according to claim 13, wherein the composition is administered by topical administration.
15. Use of a composition according to any one of claims 1 to 11 in the preparation of a medicament for treating or preventing dental caries or periodontal disease in a subject.